MODIS TECHNICAL TEAM MEETING

Building 33, Room E125
July 13, 2000

Vince Salomonson chaired the MODIS Technical Team Meeting. Present were Bruce Ramsey, Harry Montgomery, Wayne Esaias, Francesco Bordi, John Barker, Eric Vermote, Skip Reber, Ed Masuoka, Al Fleig, Bruce Vollmer, Mike Roberto, Bruce Guenther, Cynthia Hamel, and Barbara Conboy, with David Herring taking the minutes.

1.0 SCHEDULE OF EVENTS

• PI Processing Meeting GSFC	Wednesdays at 3 PM
• COSPAR 2000 Warsaw, Poland	July 16-23, 2000
• COSPAR/IRS Joint Symposium Warsaw, Poland and St. Petersburg, Russia	July 21 and July 24, 2000
• IGARSS 2000 Honolulu, HI	July 24-28, 2000
• IRS-2000 St. Petersburg, Russia	July 24-29, 2000
• SWAMP Meeting U. of Toronto, Canada	September 6-7, 2000
• EOS/SPIE Symposium on Remote Sensing Barcelona, Spain	September 25-29, 2000
• SPIE's Remote Sensing Japan 2000 Sendai, Japan	October 9-12, 2000
• VENICE-2000 (Oceans from Space) Venice, Italy	October 9-13, 2000
• Ocean Optics XV Monaco	October 16-20, 2000
• PORSEC 2000 Goa, India	December 5-8, 2000
• AGU Fall Meeting San Francisco, CA	December 15-19, 2000
• Aqua Launch	December 21, 2000

2.0 MINUTES OF THE MEETING

2.1 IGARSS Presentation on MODIS

Salomonson showed a draft version of the presentation on MODIS he is creating for the upcoming IGARSS conference. He plans to report that all the “big mechanisms” in the instrument work fine. The radiative cooler doors open, the SRCA works, solar diffuser works, SDSM works, and the blackbody works well.

The SRCA gives us registration of bands to within 0.1 pixel and the Team can get spectral location to within 1 nanometer. Guenther showed graph of signal-to-noise ratios indicating that MODIS exceeds spec across the board.

Guenther agreed that, with the exception of data products that have to work at 0.5 percent level that are bothered by bin fill issues and crosstalk, the radiometry on MODIS is very good.

Salomonson listed areas on the instrument that need improvement, such as the relatively few non-functioning and noisy detectors. There is currently an incomplete knowledge of sensor response as a function of scan angle and optical crosstalk from band 31 to bands 32 through 36 and from band 5 to bands 7 through 9. There is also the RVS (response versus scan angle) effect for band 31, but MCST has diminished some of this effect.

Salomonson concluded that the MODIS onboard mechanisms are working well. The focal plane and band-to-band registration is good. Overall, the calibration is good and signal-to-noise ratio is good. There are several aspects of the Level 1B processing that need improvement to achieve the full potential of MODIS, but the instrument can be expected to provide good science data for years to come.

Montgomery added that, from the SRCA, we see that MODIS' center wavelengths are very stable and that the instrument's gain is very stable around an orbit. Salomonson pointed out that the Team is working with NOAA so they can process data in real time and eventually produce data products as well.

2.2 Going from Side A to Side B to Improve the ADC Noise Problem.
Salomonson asked about the statement letter that summarizes the issues surrounding switching the MODIS instrument electronics from Side A to Side B to improve the analog-to-digital converter (ADC) noise problem. He said it would be good to use that letter as a mechanism for dialogue. He only wants to focus on sea surface temperature and fixing the gain on the relevant bands for that producing that product. Esaias feels that time is wasting on going to the B Side. He is disappointed that this is still an issue because a tiger team was established 2 months ago to address and resolve the matter. Salomonson asked Guenther to help resolve the issue as quickly as possible.

2.3 Focal Plane Temperature Issue
Salomonson reported on his visit with Chris Scolese and Paul Ondrus to discuss the rising temperature on the focal plane. He said Ondrus would like to open the door first, before switching over to the B-Side electronics.

Regarding band 27 Relative Spectral Response (RSR), Guenther reported that the short wave portion of the RSR is controlled by a coating on the intermediate cooler window. As the cooler gets warmer, the Band 27 bandpass gets larger and the current Level 1B code interprets this as an increase in gain. MCST observes a 3 percent full width at half-maximum (FWHM) increase in the RSR for Band 27. Guenther feels there will have to be some software changes, but he doesn't yet

know what are needed at Level 2 and how many must be made by MCST at Level 1.

Salomonson asked if the problem is temporary or will it go away with the door fix? Guenther suspects the problem will go away when the cooler is fixed. The problem is more an "if" instead of "when." MCST now sees that Bands 24, 25, and 27 have some problems with the space view signal pegging at zero. With this problem these bands will have a radiometry problem due to our not knowing the proper detector dark response. Bands 31 through 36 are losing some dynamic range.

Guenther said the Team will also have to take into consideration the upcoming outgassing of the cooler. This will take a week, so there will be 5 days of data loss for bands 5, 6,7, 27, and 31-36. Bob Murphy wants to see this done before mid-August so the science discipline group leaders need to indicate their preferences on when to do this.

2.4 GDAAC Reports

Vollmer reported that the GDAAC is current through data day 185 in terms of continuous production. There are 8- to 10-hour blocks of data coming in now for the period between July 4 and now. The GDAAC has received about 30 oceans data types into its operations. He said the GDAAC provided SDST some feedback on the perfect data day. The GDAAC would like to get more information on what it takes to get more data into the system.

2.5 SDST Reports

Masuoka said, regarding perfect data days, SDST has been getting feedback from folks in EOC and flight dynamics. His group has looked at data days to see where there are significant gaps in the data of 3 hours or more. Out of 44 days with gaps, 25 days had gaps of more than 3 hours. Masuoka said the gaps are due to a variety of problems, ranging from problems with the Ampex drives at White Sands, some software problems, and problems with the StorageTek tape drives that are used to write the Level 0 archive tapes. Unfortunately, there is no one currently who does overall tracking of problems for all of the EOS ground systems and has a timeline for getting them all solved. SDST did an analysis of the data gaps and tied them to particular problems, but who will track and take responsibility for getting those problems solved is a matter for Dolly Perkins or Chris Scolese to address.

Masuoka announced that at the end of July there will be a lot of software and hardware fixes implemented to solve known problems in EDOS. After that, it will be useful for someone to look into what problems remain and their impact on getting complete data from EDOS.

Salomonson acknowledged that there are systems problems, but more fundamentally there is a lack of resources. He feels that if the data system had more resources, there would be fewer problems. There are only 8 total global coverage days out of 81 days of data collection.

2.6 NOAA Reports
Ramsey said NOAA is in the process of finalizing submission to IPO for review of projects associated with risk reduction using MODIS as a precursor to VIRS data.

Also, Ramsey got approval to use funds for flight hours using MAS on ER-2 in collaboration with Dorothy Hall. The data will be used in NOAA's snow and ice program.

2.7 Ocean Group Reports
Esaias said the group is making progress on comparisons of in situ data with MODIS data at the University of Miami. The Group may have some results for IGARSS that documents where it stands on MODIS Ocean products. The group also plans to provide a tour of the MOBY facility on Oahu.

Salomonson asked where do we stand on RVS and MODIS ocean bands with respect to the screen effect interference problem? Guenther responded that there are still some tests to run. MCST plans to institute quadratic formula instead of a linear one.

2.8 Land Group Reports
Vermote reported that the Land Group release date for land product at Level 3 has been pushed back to August 4.

2.9 Data System Concerns
Reber reminded the Team that 2 weeks ago there was a question about MODIS housekeeping data not getting ingested into the GDAAC. Reber said he pursued the issue with Mike Moore and that Moore has not yet addressed the problem.

Also, he noted a comment recently by ESDIS that the MODIS PGE's for the Aqua mission are not ready yet. Masuoka responded that those deliveries are due on Sept. 1. Salomonson asked if we are ready for Aqua with respect to the needed hardware for processing. Masuoka said that SDST has acquired enough hardware to support early Aqua testing and integration of Version 2 MODAPS, but not to support full processing for Aqua or any of the anticipated Terra reprocessing.

Salomonson said the Science Team needs complete data processing from MODIS and it is currently not getting it. He is very concerned and asked Reber to carry that concern forward to EDOS.

2.9 MAST Reports
Conboy reported that she submitted more than 200 names of MODIS Team members for invitation to the Aqua launch. This action is closed. We have been asked not to send any more additional names.

Conboy introduced Cynthia Hamel, the Educational Outreach Coordinator for the Laboratory for Terrestrial Physics, who is producing a series of MODIS

lithographs (see Attachment 1). Cynthia asked for feedback from the Science Team.

3.0 ACTION ITEMS

3.1 Action Items Carried Forward

1. Esaias: Prepare a group of charts for the next MODIS Technical Team meeting that delineates the relevant issues related to the Band 31/32 gain change and the recommendation that Tmax should be set at 340K for both bands.

2. Guenther: Circulate recommendation to Discipline Leaders on plans to flag and fill dead detectors. Responses from Discipline Leads are needed by this time next week.

3. MODIS Science Team: Send updates on MODIS metadata terms/valids to Skip Reber (reber@skip.gsfc.nasa.gov). These are terms that enable users to search MODIS data. This is part of a request to the Terra Instrument teams to update metadata terms.

Status: This action is open.

4. Discipline Leads: Send feedback to Murphy and Guenther on setting flags for dead (non-functional) detectors while they are set to zero. Currently, MCST would like MODIS Science users to provide feedback on which detectors are dead.

Status: This action is open.

5. Discipline Leads: Send MODIS Data Product table updates to Reber with a copy to Murphy. The MODIS Data Products table is on the Web at: http://eosdatainfo.gsfc.nasa.gov/eosdata/terra/modis/modis_dataprod.html

Status: This action is open.

6. Masuoka: Submit an EOS-PM Data Product Update to ESDIS.

Status: This action item remains open.

7. Vermote: Remove password protection from MODLAND graphic that displays gaps in MODIS data.

Status: This action item remains open.

8. Masuoka: Represent MODIS concerns on data throughput to EDOS.

Status: This action items remains open.